

Advanced Li Batteries for Terrestrial Balloons, Phase I

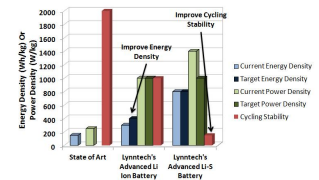
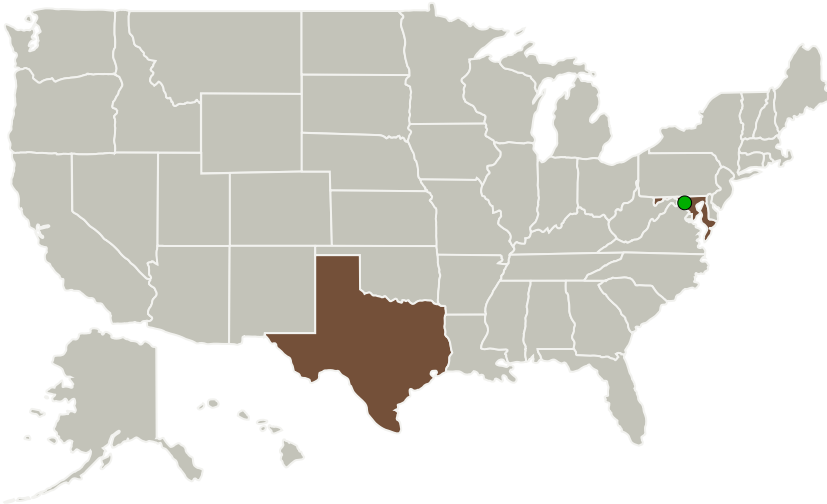
Completed Technology Project (2017 - 2017)



Project Introduction

For future advanced terrestrial balloon missions, NASA requires energy dense and power dense energy storage solutions significantly exceeding the performance of state of art Li ion batteries. The requirements for a typical 100 day mission are for a 28V system capable of providing wide power demand of 100 W minimum to 2 kW peak. Lynntech proposes to design a battery system with energy density in excess of 400 Wh/kg and power density in excess of 1,000 W/kg for the terrestrial balloon application, based on its advanced Li ion or Li-S battery technologies. The Phase I project will involve further improvements of Lynntech's battery technologies for improving the energy density and power density numbers followed by selection and optimization of the most promising option among these two technologies. A 2 kWh scale battery prototype design will be developed at the end of the Phase I project that can provide the target energy and power density as well as cycling stability for the terrestrial balloon application. The Phase II project will work on fabrication and demonstration of the battery technology at relevant scale.

Primary U.S. Work Locations and Key Partners



Advanced Li batteries for terrestrial balloons, Phase I Briefing Chart Image


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Organizations Performing Work	Role	Type	Location
Lynntech, Inc.	Lead Organization	Industry	College Station, Texas
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Lynntech, Inc.

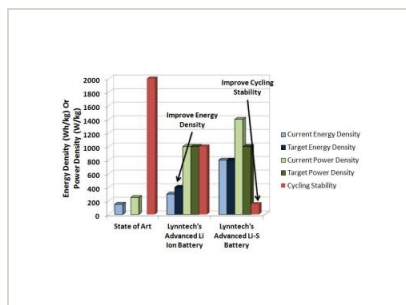
Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Primary U.S. Work Locations

Maryland	Texas
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Images

**Briefing Chart Image**

Advanced Li batteries for terrestrial balloons, Phase I Briefing Chart Image

(https://techport.nasa.gov/image/128840)

Project Management

Program Director:

Jason L Kessler

Program Manager:

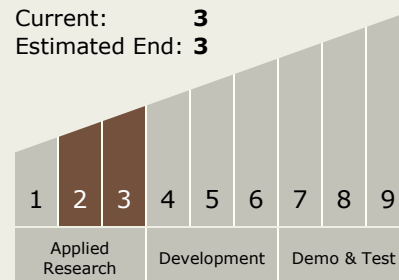
Carlos Torrez

Principal Investigator:

Mahesh Waje

Technology Maturity (TRL)

Start: 2
 Current: 3
 Estimated End: 3



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Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.4 Dynamic Energy Conversion

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System